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IS 1869 (1961): Specification for Ice Cans [MED 3: Refrigeration and Air Conditioning]

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Indian Standard
SPECIFICATION FOR ICE CANS

(First Reprint JULY 1986)

UDC 621·642·11 : 663·67

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2 *December* 1961

Indian Standard
SPECIFICATION FOR ICE CANS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 24 April 1961, after the draft finalized by the Refrigeration and Air-Conditioning Sectional Committee had been approved by the Building Division Council.

0.2 With the increase in consumption of ice in the country, commercial ice making is assuming greater importance. A number of ice plants is being started and the industry has appreciated the need for laying down minimum standards for the equipment used in ice making. This standard covers ice cans of both riveted and welded types. Standard sizes are laid down with a view to minimizing the multiplicity of sizes of ice blocks and quality requirements have been given keeping in view the need for ensuring long life and ease of handling of ice cans.

0.3 The Sectional Committee responsible for the preparation of this standard has taken into consideration the views of manufacturers, consumers and technologists and has related the standard to the manufacturing and trade practices followed in the country in this field. Due weightage has also been given to the need for international co-ordination among standards prevailing in different countries of the world.

0.4 This standard is one of a series of Indian Standards on refrigeration and air-conditioning. Other standards in the series cover metal air-ducts, domestic refrigerators (mechanically operated) self-contained water coolers, commercial refrigerators, room air-conditioners, safety code for air-conditioning, safety code for mechanical refrigeration and code of practice for insulation and safe operation of cold storages.

0.5 Wherever a reference to any Indian Standard appears in this specification, it shall be taken as a reference to the latest version of the standard.

0.6 Metric system has been adopted in India and all quantities and dimensions appearing in this standard have been given in this system.

0.7 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960 Rules for Rounding Off Numerical Values (*Revised*). The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

0.8 This standard is intended chiefly to cover the technical provisions relating to ice cans, and it does not include all the necessary provisions of a contract.

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1. SCOPE

1.1 This standard covers the materials, fabrication and construction, nominal ratings and dimensions, and testing of ice cans used in the manufacture of ice blocks. The standard covers both riveted and welded types of ice cans.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Depth of Ice Can — The inside distance in millimetres from the bottom of the ice can to the top.

2.2 Length of Ice Can — The inside distance in millimetres at the top end of the ice can measured along the length.

2.3 Width of Ice Can — The inside distance in millimetres at the top end of the ice can measured along the width.

3. MATERIALS

3.1 Ice cans of riveted type shall be fabricated out of galvanized steel sheets; welded type shall be made by welding of black steel sheets and finishing by hot-dip galvanizing. The quality of galvanizing for both types shall be not less than Class 3 specified in IS: 277-1951 Specification for Galvanized Steel Sheets (Plain and Corrugated) (*Tentative*).

3.2 Rivets for riveted cans shall be of mild steel, tinned or galvanized.

3.3 The steel band on the top of the ice can shall be hot-dip galvanized.

4. DIMENSIONS AND SIZES

4.1 The nominal ratings and designations, capacities, and sizes of ice cans shall be as given in Table I.

TABLE I NOMINAL RATING AND DESIGNATION, CAPACITY AND DIMENSIONS OF ICE CANS

(*Clause* 4.1)

Sl No.	Nominal Rating and Designation	Capacity of Can (Approx Quantity of Ice)	Plain or Grooved	Inside Dimension (Top) Width (w)	Inside Dimension (Top) Length (l)	Inside Dimension (Top) Depth (d_1)	Depth Overall (d_2)	Size of Band
(1)	(2) kg	(3) kg	(4)	(5) mm	(6) mm	(7) mm	(8) mm	(9) mm
i)	10	10 to 11	Plain	100	250	500	515	40
ii)	11	11 to 12	,,	80	345	685	710	40
iii)	22 A	21 to 23	,,	100	400	800	825	40
iv)	22 B	23 to 26	,,	125	355	840	865	40
v)	45 A	46	Grooved	200	400	800	825	40
vi)	45 B	46 to 47	,,	200	400	840	865	40
vii)	90	92	,,	280	560	840	865	40
viii)	135 A	138 to 143	,,	280	560	1 250	1 275	40
ix)	135 B	143 to 147	,,	280	560	1 300	1 325	40
x)	180 A	175 to 180	,,	280	560	1 500	1 525	45
xi)	180 B	185	,,	280	560	1 600	1 625	45
xii)	180 C	186 to 195	,,	280	560	1 675	1 700	45

5. FABRICATION AND CONSTRUCTION

5.1 The steel sheets used for sides and bottom of ice cans shall have a minimum thickness of 1·60 mm.

5.2 Each can shall be provided with a hot-dip galvanized steel band 6 mm in thickness and at least 40 mm wide for cans up to 135-kg size and at least 45 mm wide for 180-kg cans. The band shall be normally of flat shape but where so specified it may be grooved and the grooving done by hot pressing or any other suitable process. The purpose of steel band is to provide for hoisting single cans and/or attaching cans to grids, where required, for a multiple can lift.

5.2.1 In case of riveted cans, the band shall be riveted on the outside of the can and shall be flush with the top of the can as illustrated in Fig. 1A.

5.2.2 In case of welded cans the band shall be spot welded to the sides of the can and shall be flush with the top of the can. Illustration of a typical welded ice can is given in Fig. 1B.

5.3 The side seams of riveted cans shall be double riveted on a triangular pitch. Extreme care shall be taken to see that all rivets are flush on the inside of the can. For riveted seam joints, the sheets shall have a minimum lap of 40 mm. It is recommended that 6 mm rivets be used at a maximum spacing of 25 mm centre line to centre line in each row of rivets. The side seams shall also be sweat-soldered inside and outside to cover rivets and fill the seams so as to provide an even surface.

5.4 The bottom width and length of ice cans shall be 25 mm smaller than the top width and length respectively for ice cans of 90-, 135- and 180-kg capacity. For ice cans of 45 kg and less capacity, the bottom width and length shall be 20 mm less than top width and length respectively. This taper is necessary to facilitate dumping.

5.5 The wide flat sides of the can shall be centre grooved longitudinally in can sizes of 45 kg and above. The object of centre grooving is to afford some stiffening to the sides and to take up metal slack of fabrication.

5.6 The bottom flange of riveted cans shall be 25 mm making the outside height of the can 25 mm more than the inside depth. The can bottoms shall be fixed or riveted as shown in Fig. 1A.

The outside and inside joint of tongue and groove assembly of can bottom shall be properly soldered to prevent leakages. Special attention shall be paid to soldering the corners as thoroughly as possible as all the four bottom corners are areas that are subjected to maximum wear and tear.

6. TESTING

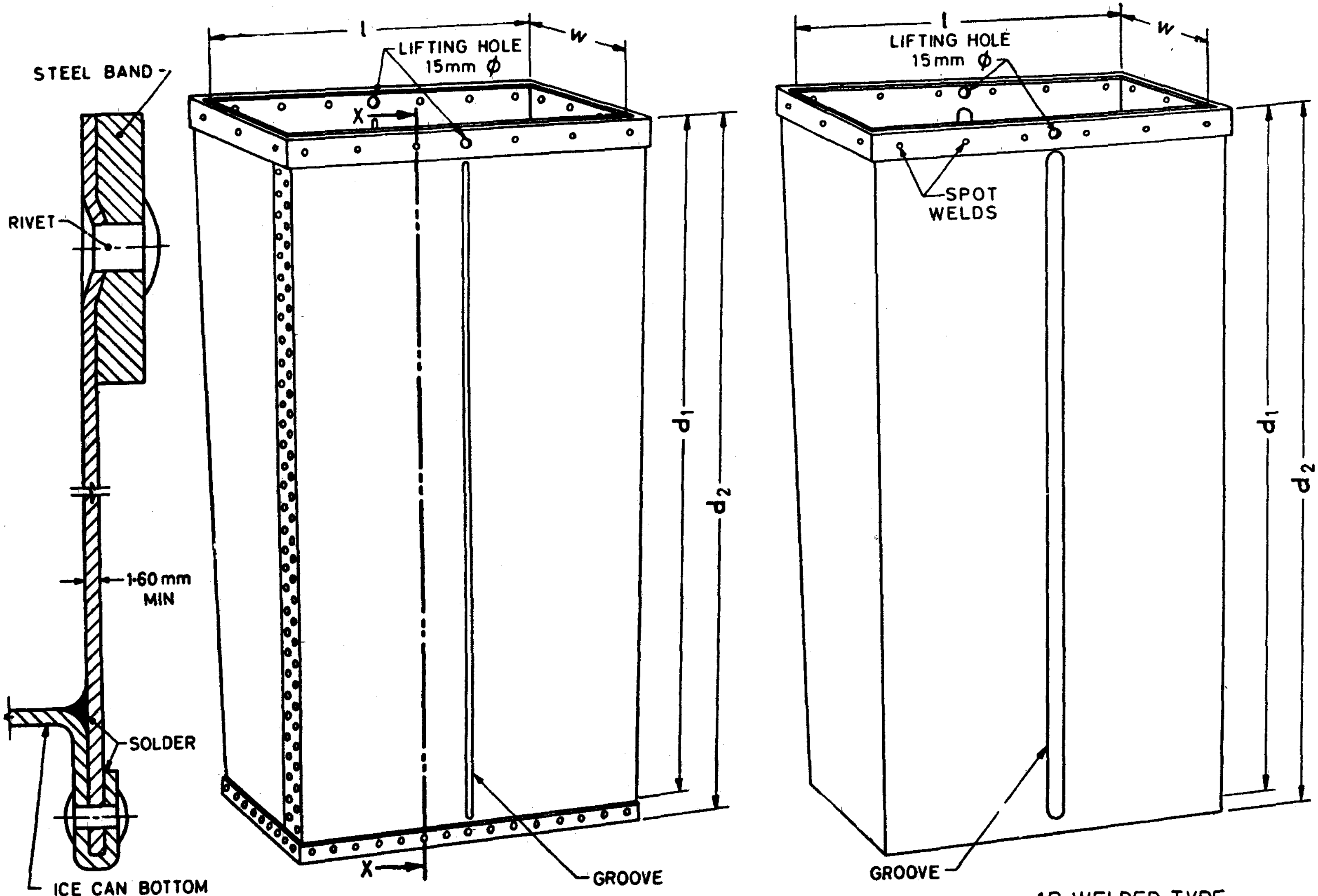
6.1 Each ice can shall be tested by immersing the empty can with bottom downward, in a tank filled with water to a depth of 50 mm below the top of the can. There shall not be any leakage of water when immersed as described for a period of 5 minutes.

7. MARKING

7.1 The nominal rating and designation (*see* Table I) of the ice can shall be marked legibly on every ice can.

7.1.1 Each ice can may also be marked with the ISI Certification Mark.

Note — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, 1952 and the Rules and Regulations made thereunder. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.



ENLARGED SECTION XX

1A RIVETED TYPE

NOTE — Riveted joints shown in the sketch are indicative and their positions are left to the choice of the manufacturer.

1B WELDED TYPE

NOTE — Welded joints are not shown and positions of welds are left to the choice of the manufacturer.

FIG. 1 ICE CANS

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